

Application No. 10/707,999  
Docket No. A4-1719  
Amendment dated August 15, 2005  
Reply to Office Action of June 15, 2005

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

### **Listing of Claims:**

Claim 1 (currently amended): A product consisting essentially of polycrystalline chips and optionally a matrix in which the chips are dispersed, the polycrystalline chips having nanocrystalline microstructures and being formed of a material chosen from the group consisting of metals, metal alloys, intermetallic materials, and ceramic materials, the matrix if present being formed of a material chosen from the group consisting of metal, metal alloy, intermetallic materials, polymeric materials, and ceramic materials; ~~materials~~

wherein the chips are produced by a machining operation so as to be in the form of particulates, ribbons, wires, filaments, and/or platelets;

wherein if the product consists essentially of the chips, the chips are held together by consolidation and the product is a monolithic material consisting essentially of a nanocrystalline microstructure; and

wherein if the product consists essentially of the chips dispersed in the matrix material, the product is a composite material.

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Claim 2 (previously presented): A product according to claim 1, wherein the material of which the chips are formed is chosen from the group consisting of metal, metal alloy and intermetallic materials.

Claim 3 (withdrawn): A product according to claim 1, wherein the material of which the chips are formed is a ceramic material.

Claim 4 (original): A product according to claim 1, wherein the chips have grains with a nominal size of less than 500 nm.

Claim 5 (original): A product according to claim 1, wherein the chips have grains with a nominal size of less than 100 nm.

Claim 6 (original): A product according to claim 1, wherein the product consists essentially of the chips held together by consolidation so that the product consists essentially of a nanocrystalline microstructure.

Claim 7 (withdrawn - currently amended): A product according to claim 1, wherein the product is a composite material and consists essentially of ~~contains~~ the chips dispersed in the matrix.

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Claim 8 (withdrawn): A product according to claim 7, wherein the chips are present in the matrix in the form of ribbons, wires or filaments.

Claim 9 (withdrawn): A product according to claim 7, wherein the chips are in the form of platelets.

Claim 10 (withdrawn): A product according to claim 7, wherein the material of the matrix is chosen from the group consisting of metal, metal alloy and intermetallic materials.

Claim 11 (withdrawn): A product according to claim 7, wherein the material of the matrix is a polymeric material.

Claim 12 (withdrawn): A product according to claim 7, wherein the material of the matrix is a ceramic material.

Claim 13 (currently amended): A product consisting essentially of polycrystalline chips produced by a machining operation so as to be in the form of particulates, ribbons, wires, filaments, and/or platelets, held together by consolidation, the chips having nanocrystalline microstructures consisting entirely of grains with a nominal size of less than 500 nm so that the product

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consists essentially of a nanocrystalline microstructure, the chips being formed of a material chosen from the group consisting of metals, metal alloys, intermetallic materials, and ceramic materials.

Claim 14 (original): A product according to claim 13, wherein the chips are formed of a material chosen from the group consisting of metal, metal alloy and intermetallic materials.

Claim 15 (withdrawn): A product according to claim 13, wherein the chips are formed of an inorganic material chosen from the group consisting of ceramic materials.

Claim 16 (original): A product according to claim 13, wherein the grains of the chips have a nominal size of less than 300 nm.

Claim 17 (withdrawn - currently amended): A product comprising polycrystalline chips dispersed in a matrix, the chips being produced by a machining operation so as to be in the form of particulates, ribbons, wires, filaments and/or platelets that consist entirely of grains with a nominal size of less than 500 nm, the chips being formed of a material chosen from the group consisting of metals, metal alloys, intermetallic materials, and ceramic

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materials, the matrix being formed of a material chosen from the group consisting of metal, metal alloy, intermetallic materials, polymeric materials, and ceramic materials.

Claim 18 (withdrawn): A product according to claim 17, wherein the chips are formed of a material chosen from the group consisting of metal, metal alloy and intermetallic materials.

Claim 19 (withdrawn): A product according to claim 17, wherein the chips are formed of an inorganic material chosen from the group consisting of ceramic materials.

Claim 20 (withdrawn): A product according to claim 17, wherein the grains of the chips have a nominal size of less than 300 nm.

Claim 21 (withdrawn): A product according to claim 17, wherein the chips are in the form of particles or platelets.

Claim 22 (withdrawn): A product according to claim 17, wherein the chips are in the form of ribbons, wires or filaments.

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Claim 23 (withdrawn): A product according to claim 17, wherein the matrix is formed of a material chosen from the group consisting of metal, metal alloy and intermetallic materials.

Claim 24 (withdrawn): A product according to claim 17, wherein the matrix is formed of a polymeric material.

Claim 25 (withdrawn): A product according to claim 17, wherein the matrix is formed of an inorganic material chosen from the group consisting of ceramic materials.